

Claims

- [c1] 1.A method of processing dual energy images comprising:
obtaining a first image generated at a first energy level;
obtaining a second image generated at a second energy level different than the first energy level;
pre-processing said first image and said second image;
decomposing said first image and said second image to form a raw soft-tissue image and a raw bone image;
post-processing the raw soft-tissue image to form a processed soft-tissue image;
post-processing the raw bone image to form a processed bone image;
display processing the processed soft-tissue image and the processed bone image.
- [c2] 2.The method of claim 1 wherein:
said pre-processing includes performing scatter correction on the first image and the second image.
- [c3] 3.The method of claim 1 wherein:
said pre-processing includes performing noise reduction on the first image and the second image.
- [c4] 4.The method of claim 1 wherein:
said pre-processing includes performing registration on at least one of the first image and the second image to correct motion artifacts.
- [c5] 5.The method of claim 1 wherein:
said post-processing the raw soft-tissue image includes adjusting the contrast of the raw soft-tissue image to match a predetermined contrast.
- [c6] 6.The method of claim 1 wherein:
said post-processing the raw soft-tissue image includes performing noise reduction on the raw soft-tissue image.
- [c7] 7.The method of claim 1 wherein:
said post-processing the raw soft-tissue image includes performing

presentation processing on the raw soft-tissue image.

[c8] 8.The method of claim 1 wherein:
said post-processing the raw bone image includes adjusting the contrast of the
raw bone image to match a predetermined contrast.

[c9] 9.The method of claim 1 wherein:
said post-processing the raw bone image includes performing noise reduction
on the raw bone image.

[c10] 10.The method of claim 1 wherein:
said post-processing the raw bone image includes performing presentation
processing on the raw bone image.

[c11] 11.The method of claim 1 wherein:
said display processing includes displaying at least one of the processed soft-
tissue image, the processed raw bone image and a standard image derived from
the first image.

[c12] 12.The method of claim 11 wherein:
said display processing includes displaying the processed soft-tissue image, the
processed raw bone image and the standard image in a timed sequence.

[c13] 13.The method of claim 1 wherein:
said display processing includes performing computer aided diagnosis on at
least one of said processed soft-tissue image and said processed bone image
and displaying results of said computer aided diagnosis.

[c14] 14.The method of claim 1 wherein:
said display processing includes designating display options for at least one of
the processed soft-tissue image and the processed bone image.

[c15] 15.A method of examining a structure comprising:
exposing the structure to an energy source at a first energy level;
acquiring a first image of the structure;
exposing the structure to an energy source at a second energy level different
than the first energy level;

acquiring a second image of the structure;
pre-processing said first image and said second image;
decomposing said first image and said second image to form a raw soft-tissue image and a raw bone image;
post-processing the raw soft-tissue image to form a processed soft-tissue image;
post-processing the raw bone image to form a processed bone image;
display processing the processed soft-tissue image and the processed bone image.

- [c16] 16.The method of claim 15 wherein:
the structure is a portion of a human;
said acquiring the first image including using cardiac gating to acquire the first image at a specific point in a cardiac cycle.
- [c17] 17.The method of claim 15 wherein:
said acquiring the first image includes adjusting the first image in response to a detector correction.
- [c18] 18.The method of claim 15 wherein:
the structure is a portion of a human;
said acquiring the second image including using cardiac gating to acquire the second image at a specific point in a cardiac cycle.
- [c19] 19.The method of claim 15 wherein:
said acquiring the second image includes adjusting the second image in response to a detector correction.
- [c20] 20.The method of claim 15 wherein:
said display processing includes performing computer aided diagnosis on at least one of said processed soft-tissue image and said processed bone image and displaying results of said computer aided diagnosis.
- [c21] 21.The method of claim 15 wherein:
said display processing includes designating display options for at least one of the processed soft-tissue image and the processed bone image.

[c22] 22.The method of claim 15 wherein:
said display processing includes displaying the processed soft-tissue image, the processed raw bone image and a standard image derived from the first image in a timed sequence.

[c23] 23.A dual energy imaging system comprising:
an energy source generating photons at a first energy level and a second energy level different than the first energy level;
a detector generating a first image representative of the photons at the first energy level passing through a structure and a second image representative of the photons at the second energy level passing through the structure;
a memory coupled to the detector, said memory storing the first image and the second image;
a processing circuit coupled to said memory, said processing circuit pre-processing said first image and said second image;
post-processing the first image to form a processed first image;
post-processing the second image to form a processed second image;
a display device coupled to said processor, said display device displaying one of the processed first image and the processed second image.

[c24] 24.A dual energy imaging system comprising:
energy means for generating photons at a first energy level and a second energy level different than the first energy level;
detection means for generating a first image representative of the photons at the first energy level passing through a structure and a second image representative of the photons at the second energy level passing through the structure;
storage means for storing the first image and the second image;
processing means for:
pre-processing said first image and said second image;
decomposing said first image and said second image to form a raw soft-tissue image and a raw bone image;
post-processing the raw soft-tissue image to form a processed soft-tissue image;

post-processing the raw bone image to form a processed bone image;
display means for displaying one of the processed soft-tissue image and the
processed bone image.

[c25]

25.A computer program product for processing dual energy images, the
product comprising:
a storage medium readable by a processing circuit and storing instructions for
execution by the processing circuit for:
obtaining a first image generated at a first energy;
obtaining a second image generated at a second energy different than the first
energy level;
pre-processing said first image and said second image;
decomposing said first image and said second image to form a raw soft-tissue
image and a raw bone image;
post-processing the raw soft-tissue image to form a processed soft-tissue
image;
post-processing the raw bone image to form a processed bone image;
display processing the processed soft-tissue image and the processed bone
image.